
New Combinations in Chinese *Cotoneaster* (Rosaceae)

Lu Lingti

Laboratory of Systematic and Evolutionary Biology, Institute of Botany, Chinese Academy of Sciences, 20 Nanxincun, Xiangshan, Beijing 100093, People's Republic of China

Anthony R. Brach

Missouri Botanical Garden, % Harvard University Herbaria, 22 Divinity Avenue, Cambridge, Massachusetts 02138-2094, U.S.A. brach@oeb.harvard.edu

ABSTRACT. During preparation of the account of *Cotoneaster* Medikus for the *Flora of China*, volume 9, it was found that some taxa required the following new combinations, namely *Cotoneaster glaucophyllus* Franchet var. *serotinus* (Hutchinson) L. T. Lu & A. R. Brach, *C. bullatus* Bois var. *floribundus* (Stapf) L. T. Lu & A. R. Brach, and *C. gracilis* Rehder & E. H. Wilson var. *difficilis* (G. Klotz) L. T. Lu.

Key words: China, *Cotoneaster*, Maloideae, Rosaceae.

In the broad sense, the genus *Cotoneaster* Medikus consists of about 90 species and is widely distributed in temperate regions of northern Africa, continental Asia, Europe, and North America (mainly in Mexico). It is most abundant in southwestern China, with about 58 species recorded from that country which have been variously placed into about seven (to more than 20) series. Their taxonomy is complicated by hybridization and apomixis. Further studies could help elucidate relationships between and within species. While preparing an account of *Cotoneaster* for the *Flora of China*, volume 9 (Lu & Brach, in press), the present authors noted that the following new combinations are necessary.

Cotoneaster glaucophyllus Franchet (1890: 222) is a semi-evergreen shrub endemic to southwestern China (Guangxi, Guizhou, Sichuan, and Yunnan Provinces), with elliptic to ovate, glaucous leaves, compact, compound, to more than 50-flowered corymbs, spreading, white petals, and reddish yellow, ovoid to obovoid fruit.

In addition to its typical variety, two other named varieties occur in China: *Cotoneaster glaucophyllus* var. *vestitus* W. W. Smith (1917: 21) and variety *meiophyllus* W. W. Smith (loc. cit.). A form of this species, f. *serotinus* (Hutchinson) Stapf, which was originally described at specific rank (*C. serotinus*

Hutchinson), is best treated as a fourth variety; thus a new combination is required.

***Cotoneaster glaucophyllus* Franchet var. *serotinus* (Hutchinson) L. T. Lu & A. R. Brach, comb. nov.** Basionym: *Cotoneaster serotinus* Hutchinson, Bot. Mag. 146: t. 8854. 1920. *Cotoneaster glaucophyllus* Franchet f. *serotinus* (Hutchinson) Stapf, Bot. Mag. 153: t. 9171. 1929. TYPE: plant cultivated in the garden of Mr. G. H. Wollaston, Flaxley Cottage, Flax Bourton, United Kingdom, 1919 (fr), grown from seeds collected in China. Yunnan: *G. Forrest* 6754 (holotype, K).

This fourth variety occurs from 1900 to 3000 m in mountainous regions of western Yunnan Province. It is characterized by having leaf blades 4–6 cm, abaxially pubescent when young, gradually glabrescent, and inflorescences 50- to 60-flowered, white tomentose initially, later glabrescent. The four varieties of *Cotoneaster glaucophyllus* are distinguished as follows:

KEY TO VARIETIES OF *COTONEASTER GLAUCOPHYLLUS*

- 1a. Leaf blade 3.5–6 cm.
 - 2a. Inflorescences to 40-flowered, with soft yellow hairs var. *glaucophyllus*
 - 2b. Inflorescences 50- to 60-flowered, white tomentose initially, later glabrescent var. *serotinus*
- 1b. Leaf blade 1.5–3 cm.
 - 3a. Leaf blade abaxially densely yellow tomentose when young, later glabrescent; inflorescences to 40-flowered, larger, densely white tomentose when young var. *vestitus*
 - 3b. Leaf blade abaxially slightly pubescent or subglabrous; inflorescences 6- to 12-flowered, smaller, with soft hairs . . var. *meiophyllus*

Cotoneaster bullatus Bois (in Vilmorin & Bois, 1904: 119) is a deciduous shrub endemic to southwestern China (Hubei, Sichuan, Xizang, and Yunnan Provinces), with conspicuously rugose, bullate

leaves, lax, 5- to 31-flowered corymbs, erect, pink petals, and red to dark purple, globose or obovoid fruit. In addition to its typical variety, another named variety occurs in China: *C. bullatus* var. *macrophyllus* Rehder & E. H. Wilson (in Sargent, 1912: 164). A form of this species, f. *floribundus* (Stapf) Rehder & E. H. Wilson (originally described as a form of *C. moupinensis* Franchet), is best treated as a third variety of *C. bullatus*; thus a new combination is required.

Cotoneaster bullatus* Bois var. *floribundus (Stapf) L. T. Lu & A. R. Brach, comb. nov. Basionym: *Cotoneaster moupinensis* Franchet f. *floribundus* Stapf, Bot. Mag. 135: t. 8284. 1909. *Cotoneaster bullatus* f. *floribundus* (Stapf) Rehder & E. H. Wilson, in Sargent, Pl. Wilson. 1: 165. 1912. TYPE: plant cultivated at the Royal Botanic Gardens, Kew, United Kingdom, from seed collected in China. Sichuan: "near Tachienlu" [Kangding], *M. Vilmorin* 2123 (holotype, K).

This second variety occurs in mountain forests from 900 to 2100 m in western Sichuan Province. It is characterized by having petioles 1.5(-2.5) mm, leaf blades ovate or obovate, less than 5 cm, and inflorescences 4-6 cm in diameter, 15- to 31-flowered.

The three varieties of *Cotoneaster bullatus* are distinguished as follows:

KEY TO VARIETIES OF *COTONEASTER BULLATUS*

- 1a. Petiole 3-6 mm; inflorescences 5- to 13-flowered var. *bullatus*
- 1b. Petiole 1.5-2.5 mm; inflorescences 11- to 31-flowered.
 - 2a. Leaf blade 5-15 × 2.5-8 cm, petiole ca. 2 mm; inflorescences 5-8 cm diam., 11- or more flowered var. *macrophyllus*
 - 2b. Leaf blade usually less than 5 cm, petiole usually less than 2 mm; inflorescences 4-6 cm diam., 15- or more flowered var. *floribundus*

Cotoneaster gracilis Rehder & E. H. Wilson (in Sargent, 1912: 167) is a deciduous shrub endemic to central China (Gansu, Hubei, Shaanxi, and Sichuan Provinces), with ovate to broadly elliptic leaves, lax, 1- to 7-flowered corymbs, erect, red petals and red, obovoid, puberulous fruit. In addition to its typical variety, another species, *Cotoneaster difficilis* G. Klotz, is very similar to it, but differs mainly by its smaller leaf blades and few-flowered inflorescences. This latter species is best

treated at varietal rank under *C. gracilis*; thus a new combination is required.

Cotoneaster gracilis* Rehder & E. H. Wilson var. *difficilis (G. Klotz) L. T. Lu, comb. nov. Basionym: *Cotoneaster difficilis* G. Klotz, Wiss. Z. Friedrich-Schiller-Univ. Jena, Math.-Naturwiss. Reihe 21(5-6): 1017. 1972. TYPE: China. Sichuan: "valley of Hsao chin ho [Xiaojin River] near Mon kong ting, 7-10,000 ft.," June 1908, *E. H. Wilson* 2169 (holotype, A; isotype, BM).

This variety occurs from 1800 to 3000 m in mountain regions of southeastern Gansu and western Sichuan Provinces. *Cotoneaster gracilis* var. *difficilis* is characterized by having leaf blades ovate-elliptic to broadly elliptic, 7-14 × 5.5-8 mm, abaxially tomentose initially, and inflorescences 1- to 3(to 6)-flowered. It is distinguished from the typical variety as follows:

KEY TO VARIETIES OF *COTONEASTER GRACILIS*

- 1a. Leaf blade ovate to oblong-ovate, 20-35 × 10-20 mm, densely tomentose abaxially; inflorescences 3- to 7-flowered var. *gracilis*
- 1b. Leaf blade ovate-elliptic to broadly elliptic, 7-14 × 5.5-8 mm, initially tomentose abaxially; inflorescences 1- to 3(to 6)-flowered var. *difficilis*

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Literature Cited

- Franchet, A. 1889-1890. *Plantae delavayanae*. Plantes de Chine recueillies au Yun-nan par l'Abbé Delavay et décrites par A. Franchet. Paul Klincksieck, Paris.
- Lu, Lingdi [Ling-ti] & Brach, A. R. In press. *Cotoneaster* Medikus. In: Zhengyi Wu & P. H. Raven (editors), *Flora of China*, Vol. 9. Science Press, Beijing, and Missouri Botanical Garden Press, St. Louis.
- Sargent, C. (editor). 1911-1917. *Plantae Wilsonianae*. An Enumeration of the Woody Plants Collected in Western China for the Arnold Arboretum of Harvard University During the Years 1907, 1908, and 1910 by E. H. Wilson. Harvard Univ. Press, Cambridge, Massachusetts.
- Smith, W. W. 1917. Diagnoses specierum novarum in herbario Horti Regii Botanici Edinburgensis cognitarum (species asiaticae). *Notes Roy. Bot. Gard. Edinburgh* 10: 1-78.
- Vilmorin, M. de & D. G. J. M. Bois. 1904. *Fruticetum Vilmorinianum*. Catalogus primarius. Catalogue des arbustes existant en 1904 dans la collection de M. Maurice Levêque de Vilmorin avec la description d'espèces nouvelles et d'introduction récente. Librairie Agricole, Paris.